L74 ANSWER 10 OF 10 DGENE COPYRIGHT 2003 THOMSON DERWENT on STN
ACCESSION NUMBER: AAR76995 Protein DGENE
TITLE: New pre-coelenterazine peptide derived from jellyfish green **fluorescent protein** - used for prodn. of coelenterazine, useful as bioluminescent indicator for e.g. cell selection and mutagenicity testing
INVENTOR: Chalfie M; Ward W
PATENT ASSIGNEE: (CHAL-I) CHALFIE M.
(WARD-I) WARD W.
PATENT INFO: WO 9521191 A 19950810 55p
APPLICATION INFO: **WO 1995-US1425 19950203**
PRIORITY INFO: US 1994-192158 19940204
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1995-283729 [37]
CROSS REFERENCES: N-PSDB: AAR76995
DESCRIPTION: Modified jellyfish green **fluorescent protein** gfp (C197A).

TI New pre-coelenterazine peptide derived from jellyfish green **fluorescent protein** - used for prodn. of coelenterazine, useful as bioluminescent indicator for e.g. cell selection and mutagenicity testing

AI **WO 1995-US1425 19950203**

DESC Modified jellyfish green **fluorescent protein** gfp (C197A).

KW Jellyfish; pre-coelenterazine peptide; bioluminescent indicator; green **fluorescent protein**; gfp (C197A); marker.

SEQ

```
  1 xskgeelftg vvpilveldg dvnghkfsvs gegegdatyg kltlkfictt
 51 gklpvpwptl vttfyygvqc fsrypdhmkq hdffksampe gyvqertiff
101 kddgnyktra evkfegdtlv nrielkgidf kedgnilghk leynynshnv
151 yimadkqkng ikvnfkirhn iedgsvqlad hyqqntpigd gpvllpdnhy
201 lstqsalskd pnekrdhmvl lefvtaagit hgmdelyk
```

AN AAR76995 Protein DGENE

AA 8 A; 6 R; 13 N; 18 D; 0 B; 2 C; 8 Q; 16 E; 0 Z; 22 G; 10 H; 12 I; 19 L; 20 K; 5 M; 13 F; 10 P; 10 S; 15 T; 1 W; 12 Y; 17 V; 1 Others

SQL 238

```
  1 xskgeelftg vvpilveldg dvnghkfsvs gegegdatyg kltlkfictt
 51 gklpvpwptl vttfyygvqc fsrypdhmkq hdffksampe gyvqertiff
101 kddgnyktra evkfegdtlv nrielkgidf kedgnilghk leynynshnv
151 yimadkqkng ikvnfkirhn iedgsvqlad hyqqntpigd gpvllpdnhy
201 lstqsalskd pnekrdhmvl lefvtaagit hgmdelyk
```

FEATURE TABLE:

Key	Location	Qualifier	
Misc-difference	1	label	Methionyl-Ala
Misc-difference	80	label	Q,R
Misc-difference	100	label	F,Y
Misc-difference	108	label	T,S
Misc-difference	141	label	L,M
Misc-difference	172	label	E,K
Misc-difference	219	label	V,I
Misc-difference	229..238	note	"any of these AAs may be omitted"

L81 ANSWER 83 OF 94 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1990:113291 CAPLUS
DOCUMENT NUMBER: 112:113291
TITLE: Candida glabrata metallothioneins. Cloning and sequence of the genes and characterization of proteins
AUTHOR(S): Mehra, Rajesh K.; Garey, James R.; Butt, Tauseef R.; Gray, William R.; Winge, Dennis R.
CORPORATE SOURCE: Med. Cent., Univ. Utah, Salt Lake City, UT, 84132, USA
SOURCE: Journal of Biological Chemistry (**1989**), 264(33), 19747-53
CODEN: JBCHA3; ISSN: 0021-9258
DOCUMENT TYPE: Journal
LANGUAGE: English
SO Journal of Biological Chemistry (**1989**), 264(33), 19747-53
CODEN: JBCHA3; ISSN: 0021-9258
AB . . . cysteines in a Cys-X-X-Cys sequence. The sequence of MT-II contains 16 cysteinyl residues, 14 of which are in Cys-X-Cys sequences. **Fluorescence** spectroscopy indicates the presence of Cu(I)-thiolate bonds in both proteins. The binding stoichiometries are 11-12 for MT-I and 10 for. . .
IT 125691-56-7, Metallothionein II (Candida glabrata strain 67 protein moiety reduced) **125691-65-8**, Metallothionein I (Candida glabrata strain 67 protein moiety reduced)
RL: PRP (Properties)
(amino acid sequence of)
IT **125691-65-8**, Metallothionein I (Candida glabrata strain 67 protein moiety reduced)
RL: PRP (Properties)
(amino acid sequence of)
RN 125691-65-8 CAPLUS
CN Metallothionein I (Candida glabrata strain 67 protein moiety reduced) (9CI) (CA INDEX NAME)

SEQ 1 MANDCKCPNG CSCPNCANGG CQCGDKCECK KQSCHGCGEQ CKCGSHGSSC
51 HGSCGCGDKC DCK

L81 ANSWER 44 OF 94 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1993:489864 CAPLUS
DOCUMENT NUMBER: 119:89864
TITLE: Expression, purification, and physicochemical characterization of a recombinant Yersinia protein tyrosine phosphatase
AUTHOR(S): Zhang, Zhong Yin; Clemens, James C.; Schubert, Heidi L.; Stuckey, Jeanne A.; Fischer, Mark W. F.; Hume, Daniel M.; Saper, Mark A.; Dixon, Jack E.
CORPORATE SOURCE: Dep. Biol. Chem., Univ. Michigan, Ann Arbor, MI, 48109, USA
SOURCE: Journal of Biological Chemistry (**1992**), 267(33), 23759-66
CODEN: JBCHA3; ISSN: 0021-9258
DOCUMENT TYPE: Journal
LANGUAGE: English
SO Journal of Biological Chemistry (**1992**), 267(33), 23759-66
CODEN: JBCHA3; ISSN: 0021-9258
AB . . . established that the Yersinia PTPases exist and function as monomers in soln. Yop51 and Yop51* display identical UV, CD, and **fluorescence** spectra and have identical kinetic and structural stability properties. These full-length Yersinia PTPases have 31% .alpha.-helix, an emission max. of. . . at pH 5.0, 30.degree.C, and an unfolding .DELTA.G value of 6 kcal/mol at 25.degree.C. Yop51*.DELTA.162 has very similar kinetic and **fluorescence** characteristics to the full-length mols., whereas its CD and UV spectra show noticeable differences due to the elimination of 162. . .
IT **123781-29-3**
RL: PRP (Properties); BIOL (Biological study)
(amino acid sequence of, complete)
IT **123781-29-3**
RL: PRP (Properties); BIOL (Biological study)
(amino acid sequence of, complete)
RN 123781-29-3 CAPLUS
CN Protein (plasmid pYVe227 clone pTM200 gene yop51 reduced) (9CI) (CA INDEX NAME)

SEQ
1 MNLSLSDLHR QVSRLVQQES GDCTGKLRGN VAANKETTFQ GLTIASGARE
51 SEKVFAQTVL SHVANIVLTQ EDTAKLLQST VKHNLNNYEL RSVGNGNSVL
101 VSLRSDQMTL QDAKVLLEAA LRQESGARGH VSSHSHSVLH APGTPVREGL
151 RSHLDPRTPP LPPRERPHTS GHHGAGEARA TAPSTVSPYG PEARAELSSR
201 LTTLRNTLAP ATNDPRYLQA CGGEKLNRFR DIQCCRQTAV RADLNANYIQ
251 VGNTRTIACQ YPLQSQLESH FRMLAENRTP VLAVLASSSE IANQRFGMPD
301 YFRQSGTYGS ITVESKMTQQ VGLGDGIMAD MYTLTIREAG QKTISVPVVH
351 VGNWPDQTAV SSEVTKALAS LVDQTAETKR NMYESKGSSA VADDSKLRPV
401 IHCRAGVGRT AQLIGAMCMN DSRNSQLSVE DMVSQMRVQR NGIMVQKDEQ
451 LDVLIKLAEG QGRPLLNS

L81 ANSWER 94 OF 94 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1977:38948 CAPLUS
DOCUMENT NUMBER: 86:38948
TITLE: Conformational characteristics of luliberin. Circular dichroism and **fluorescence** studies
AUTHOR(S): Marche, Pierre; Montenay-Garestier, Therese; Helene, Claude; Fromageot, Pierre
CORPORATE SOURCE: Dep. Biol., CEN Saclay, Gif sur Yvette, Fr.
SOURCE: Biochemistry (**1976**), 15(26), 5730-7
CODEN: BICHAW; ISSN: 0006-2960
DOCUMENT TYPE: Journal
LANGUAGE: English
TI Conformational characteristics of luliberin. Circular dichroism and **fluorescence** studies
SO Biochemistry (**1976**), 15(26), 5730-7
CODEN: BICHAW; ISSN: 0006-2960
AB By CD and **fluorescence** spectroscopy, the conformation of luliberin (LH-releasing hormone) was investigated under various conditions of pH and solvents. Several structural parameters were. . .
IT Circular dichroism
Fluorescence
(of luliberin)
IT 2382-79-8 33217-51-5 53412-64-9 59189-94-5
RL: PRP (Properties)
(CD and **fluorescence** of, luliberin in relation to)
IT 9034-40-6 35263-73-1 35544-05-9 37077-35-3 38234-21-8 47921-88-0 51278-37-6 **51586-28-8**
RL: PRP (Properties)
(conformation of)
IT **51586-28-8**
RL: PRP (Properties)
(conformation of)
RN 51586-28-8 CAPLUS
CN Luteinizing hormone-releasing factor (swine), 3-glycine- (9CI) (CA INDEX NAME)

NTE modified

SEQ 1 XHGSYGLRPG

L21 ANSWER 13 OF 15 MEDLINE on STN DUPLICATE 8
ACCESSION NUMBER: 96305135 MEDLINE
DOCUMENT NUMBER: 96305135 PubMed ID: 8707051
TITLE: Dual color microscopic imagery of cells expressing the **green** fluorescent protein and a **red** -shifted variant.
AUTHOR: Yang T T; Kain S R; Kitts P; Kondepudi A; Yang M M; Youvan D C
CORPORATE SOURCE: Cell Biology Group, CLONTECH Laboratories, Inc., Palo Alto, CA 94303, USA.
CONTRACT NUMBER: GM42645 (NIGMS)
SOURCE: GENE, (1996) 173 (1 Spec No) 19-23.
Journal code: 7706761. ISSN: 0378-1119.
PUB. COUNTRY: Netherlands
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199609
ENTRY DATE: Entered STN: 19960919
Last Updated on STN: 19980206
Entered Medline: 19960911

AB The **green** fluorescent protein (GFP) from the **jellyfish** , Aequorea victoria, has become a versatile reporter for monitoring gene expression and protein localization in a variety of cells and organisms. GFP emits bright **green** light (lambda max = 510 nm) when excited with ultraviolet (UV) or **blue** light (lambda max = 395 nm, minor peak at 470 nm). The chromophore in GFP is intrinsic to the primary structure of the protein, and fluorescence from GFP does not require additional gene products, substrates or other factors. GFP fluorescence is stable, species-independent and can be monitored noninvasively using the techniques of fluorescence microscopy and flow cytometry [Chalfie et al., Science 263 (1994) 802-805; Stearns, Curr. Biol. 5 (1995) 262-264]. The protein appears to undergo an autocatalytic reaction to create the fluorophore [Heim et al., Proc. Natl. Acad. Sci. USA 91 (1994) 12501-12504] in a process involving cyclization of a Tyr66 aa residue. Recently [Delagrave et al., Bio/Technology 13 (1995) 151-154], a combinatorial mutagenic strategy was targeted at aa 64 through 69, which spans the chromophore of A. victoria GFP, yielding a number of different mutants with **red**-shifted fluorescence excitation spectra. One of these, RSGFP4, retains the characteristic **green** emission spectra (lambda max = 505 nm), but has a single excitation peak (lambda max = 490 nm). The fluorescence properties of RSGFP4 are similar to those of another naturally occurring GFP from the sea pansy, Renilla reniformis [Ward and Cormier, Photobiochem. Photobiol. 27 (1978) 389-396]. In the present study, we demonstrate by fluorescence microscopy that selective excitation of A. victoria GFP and RSGFP4 allows for spectral separation of each fluorescent signal, and provides the means to image these signals independently in a mixed population of bacteria or mammalian cells.

L21 ANSWER 10 OF 15 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 2001:809926 CAPLUS
DOCUMENT NUMBER: 136:114436
TITLE: Color transitions in coral's fluorescent proteins by site-directed mutagenesis
AUTHOR(S): Gurskaya, Nadya G.; Savitsky, Alexander P.; Yanushevich, Yurii G.; Lukyanov, Sergey A.; Lukyanov, Konstantin A.
CORPORATE SOURCE: Shemiakin and Ovchimiikov Institute of Bioorganic Chemistry, Moscow, 117871, Russia
SOURCE: BMC Biochemistry [online computer file] (2001), 2, No pp. given
CODEN: BBMIB3
URL: http://www.biomedcentral.com/content/pdf/1472-2091-2-6.pdf
PUBLISHER: BioMed Central Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB **Green** Fluorescent Protein (GFP) cloned from **jellyfish** Aequorea victoria and its homologs from corals Anthozoa have a great practical significance as in vivo markers of gene expression. Also, they are an interesting puzzle of protein science due to an unusual mechanism of chromophore formation and diversity of fluorescent colors. Fluorescent proteins can be subdivided into cyan (.apprx.485 nm), **green** (.apprx.505 nm), yellow (.apprx.540 nm), and **red** (>580 nm)emitters. The authors applied site-directed mutagenesis in order to investigate the structural background of color variety and possibility of shifting between different types of fluorescence. First, a **blue** -shifted mutant of cyan amFP486 was generated. Second, it was established that cyan and **green** emitters can be modified so as to produce an intermediate spectrum of fluorescence. Third, the relationship between **green** and yellow fluorescence was inspected on closely homologous **green** zFP506 and yellow zFP538 proteins. The following transitions of colors were performed: yellow to **green**; yellow to dual color (**green** and yellow); and **green** to yellow. Fourth, the authors generated a mutant of cyan emitter dsFP483 that demonstrated dual color (cyan and **red**) fluorescence. Several amino acid substitutions were found to strongly affect fluorescence maxima. Some positions primarily found by sequence comparison were proved to be crucial for fluorescence of particular color. These results are the first step towards predicting the color of natural GFP-like proteins corresponding to newly identified cDNAs from corals.
REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L21 ANSWER 11 OF 15 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
DUPLICATE 7

L21 ANSWER 6 OF 15 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
DUPLICATE 5

ACCESSION NUMBER: 2001:492942 BIOSIS
DOCUMENT NUMBER: PREV200100492942
TITLE: Mutagenesis and characterization of **red** fluorescent protein.
AUTHOR(S): Nolan, Alexandra M. (1); Naik, Rajesh R. (1); Stone, Morley O. (1)
CORPORATE SOURCE: (1) Materials and Manufacturing Directorate, AFRL/MLPJ, 3005 P St, Bldg 651, Wright-Patterson Air Force Base, OH, 45433: alexandra.nolan@afrl.af.mil USA
SOURCE: Abstracts of Papers American Chemical Society, (2001) Vol. 222, No. 1-2, pp. BIOL51. print.
Meeting Info.: 222nd National Meeting of the American Chemical Society Chicago, Illinois, USA August 26-30, 2001 American Chemical Society
. ISSN: 0065-7727.
DOCUMENT TYPE: Conference
LANGUAGE: English
SUMMARY LANGUAGE: English

AB **Green** fluorescent protein (GFP) from the **jellyfish** Aequorea victoria has widely been used in cell biology over the last decade. When excited with near ultraviolet (UV) light (395nm), wild type GFP emits **green** light at 509 nm. Since the cloning and expression of the gene encoding GFP, this molecule has been studied extensively and utilized for various biomedical applications. Mutagenesis of the gene encoding GFP has also proven itself to be a valuable tool. For example, mutagenesis of wildtype GFP has improved properties such as photostability and quantum efficiency. Mutagenesis has also yielded GFP-variants with fluorescent hues ranging from **blue** to yellow. Recently, a **red** fluorescent protein (RFP) has been isolated from the coral Discosoma. The protein is homologous to GFP in structure and it has a large degree of amino acid conservation. However, when compared to GFP, RFP takes nearly twice as long to fold and has a much lower quantum yield. Through mutagenesis, we attempted to create variations of RFP with improved folding efficiency and a higher quantum yield.